

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Atty. Docket: NL 000211

Group Art Unit: 2629

Examiner: KUMAR, S.K.

Confirmation No. 8218

Title: ASSEMBLY OF A DISPLAY DEVICE AND AN ILLUMINATION SYSTEM

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Board of Patent Appeals and Interferences
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Appellant herewith respectfully presents a Brief on Appeal as follows, having filed a Notice of Appeal on February 28, 2007:

REAL PARTY IN INTEREST

The real party in interest is Koninklijke Philips Electronics N.V., a corporation of The Netherlands having an office and a place of business at Groenewoudseweg 1, Eindhoven, Netherlands 5621 BA. Koninklijke Philips Electronics N.V. is the parent company of the assignee of record U.S. Philips Corporation, a Delaware corporation having an office and a place of business at 345 Scarborough Road, Briarcliff Manor, New York, 10150-8001.

RELATED APPEALS AND INTERFERENCES

To the best of Appellants' knowledge and belief, there are no related appeals or interferences.

STATUS OF CLAIMS

Claims 1-20 are pending in this application. Claims 1-20 are rejected in the Final Office Action that issued November 30, 2006. This rejection was upheld, in an Advisory Action that issued February 7, 2007. Claims 1-20 are the subject of this appeal.

STATUS OF AMENDMENTS

Appellants filed on January 9, 2007 an after final amendment in response to a Final Office Action mailed on November 30, 2006. The after final amendment was entered as indicated in the Advisory Action mailed on February 7, 2007, which upheld the rejection in response to the after final amendment. This Appeal Brief is in response to the Final Office Action mailed November 30, 2006, that finally rejected Claims 1-20, which remain finally rejected in the Advisory Action mailed on February 7, 2007.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention, for example as claimed in independent Claim 1, 8-9, 17 and 19, relates to an assembly including a display device, a display device, and a illumination system for a display device which is provided with a pattern of pixels driven by a control circuit 8, as shown in FIG 1 and described on page 5, line 32 to page 6, line 17 of the specification. FIGS 1-2 also show an illumination system for illuminating the display device. As shown in FIG 1 and described on page 6, line 33 to page 7, line 14, the illumination system includes a light-emitting panel 11 capable of providing light to the display device, and at least one light source 16 associated with the light-emitting panel 11.

The light source comprises at least three sets of light-emitting diodes 16, 16', 16", shown in FIG 1 and described on page 7, line 6-13, where each set of light-emitting diodes has a different light-emitting wavelength.

As described on page 6, lines 18-32, the control circuit 8

also drives luminous fluxes of the light-emitting diodes 16, 16', 16", in dependence upon an image to be displayed by the display device. The control circuit 8 may also be operable to vary an intensity of light emitted by each set of the light-emitting diodes 16, 16', 16" in response to an illumination level of the image to be displayed by the display device, as described on page 3, lines 19-22. The intensity of the light emitted by each set of the light-emitting diodes 16, 16', 16" can be adjusted, e.g., for each color, on a frame-to-frame basis, as described on page 10, lines 5-14.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether Claims 1, 3-4, 8-9, 12-13, 17 and 19 of U.S. Patent Application Serial No. 09/837,937 are obvious under 35 U.S.C. §103(a) over U.S. Patent No. 6,008,871 (Okumaru) in view of U.S. Patent No. 5,748,828 (Steiner).

The Appellants respectfully request the Board to address the patentability of independent Claims 1, 8-9, 17 and 19, and further Claims 3-4 and 12-13. In addition, Appellants respectfully request the Board to address the patentability of Claims 2, 5-7, 10-11, 14-16, 18 and 20 as depending from Claims 1, 17 and 19, based on the requirements of independent Claims 1, 17 and 19. This position is provided for the specific and stated purpose of simplifying the current issues on appeal. However, the Appellants herein specifically reserve the right to argue and address the patentability of Claims 2, 5-7, 10-11, 14-16, 18 and 20 at a later date should the separately patentable subject matter of Claims 2, 5-7, 10-11, 14-16, 18 and 20 later become an issue. Accordingly, this limitation of the subject matter presented for appeal herein, specifically limited to discussions of the patentability of

independent Claims 1, 8-9, 17 and 19, and dependent Claims 3-4 and 12-13 is not intended as a waiver of Appellants' right to argue the patentability of the further claims and claim elements at that later time.

ARGUMENT

Claims 1, 3-4, 8-9, 12-13, 17 and 19 are said to be unpatentable over Okumaru and Steiner.

Okumaru is directed to a transfective liquid crystal display device comprising a liquid crystal having one polarizer disposed on the viewer's side of the liquid crystal panel, and a reflective polarizer disposed on the opposite side of the liquid crystal panel. The reflective polarizer reflects light having a first polarization and transmits light having a second polarization. A backlight assembly is substantially black in a non-emissive state.

In the Advisory Action, column 10, lines 14-45 are cited to allegedly show a control circuit that drives luminous fluxes of light-emitting diodes in dependence upon an image to be displayed by the display device, as recited in independent Claims 1, 8-9, 17 and 19.

It is respectfully submitted that column 10, lines 14-45 merely teach that having different density of light diffusing elements 504, shown in FIG 5a, changes the luminance factor of the backlight assembly. As specifically recited on column 9, lines 65-

66:

The light diffusing elements were provided by printing white paint. (Emphasis added)

That is, once a set amount of white paint is printed, then the amount of light diffusion is set and remains the same. To change the amount of light diffusion, then the amount of paint must be changed. It is respectfully submitted that printing white paint in no way teaches or suggests a controller for controlling luminous fluxes of the light-emitting diodes. Appellants fail to find in Okumaru a controller that can change the amount of printed paint to change any luminous fluxes.

Assuming, arguendo, that Okumaru teaches a controller that can change the luminous fluxes, it is respectfully submitted that any controller of Okumaru cannot change the luminous fluxes of the light-emitting diodes in dependence upon an image to be displayed by the display device, in independent Claims 1, 8-9, 17 and 19. Okumaru simply does not teach or suggest a controller that can change the amount of printed paint in dependence upon an image to be displayed by the display device, to change any luminous fluxes.

In stark contrast, the present invention as recited in

independent Claim 1, and similarly recited in independent Claims 8-9, 17 and 19, amongst other patentable elements, requires (illustrative emphasis provided):

the control circuit also drives luminous fluxes of the light-emitting diodes in dependence upon an image to be displayed by the display device.

A control circuit for driving luminous fluxes of light-emitting diodes in dependence upon an image to be displayed by the display is nowhere taught or suggested in Okumaru. Steiner is cited to allegedly show other features and does not remedy the deficiencies in Okumaru.

Accordingly, it is respectfully submitted that independent Claims 1, 8-9, 17 and 19 are allowable, and allowance thereof is respectfully requested. In addition, it is respectfully submitted that Claims 2-7, 10-16, 18 and 20 should also be allowed based at least on their dependence from independent Claims 1, 17 and 19.

Dependent Claims 3-4 and 12-13 also include patentable features. On page 4 of the Final Office Action, column 10, lines 45-53 of Okumaru are cited to allegedly show the features of Claims 3-4 and 12-13, namely, that the intensity of the light emitted by

each set of the light-emitting diodes can be adjusted on a frame-to-frame basis.

It is respectfully submitted that column 10, lines 45-53 merely recite that light entering a light guide is emitted from cavities, where such a backlight assembly "exhibits substantially black color in a non-emissive state." (Column 10, lines 52-53) The fact that a backlight may be black in one state and a different color in a different state does not teach or suggest a control circuit for adjusting the intensity of light emitted by each set of the light-emitting diodes on a frame-to-frame basis, as recited Claims 3-4 and 12-13, in dependence upon an image to be displayed by the display device (as recited in independent Claims 1, 8-9, 17 and 19).

In addition, Appellants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Appellants reserve the right to submit further arguments in support of the above stated position,


should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

CONCLUSION

Claims 1-20 are patentable over Okumura and Steiner.

In view of the above, it is respectfully submitted that the present application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

Respectfully submitted,

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CLAIMS APPENDIX

1. An assembly comprising:

a display device provided with a pattern of pixels driven by a control circuit, and

an illumination system for illuminating the display device,

said illumination system comprising a light-emitting panel and at least one light source, said light source being associated with the light-emitting panel, the light-emitting panel capable of providing light to the display device, wherein:

the light source comprises at least three sets of light-emitting diodes, wherein each set of light-emitting diodes has a different light-emitting wavelength, and

the control circuit also drives luminous fluxes of the light-emitting diodes in dependence upon an image to be displayed by the display device.

2. An assembly as claimed in claim 1, wherein the control circuit varies an intensity of light emitted by each set of the

light-emitting diodes in response to an illumination level of the image to be displayed by the display device.

3. An assembly as claimed in claim 1, wherein the intensity of the light emitted by each set of the light-emitting diodes can be adjusted on a frame-to-frame basis.

4. An assembly as claimed in claim 1, wherein the intensity of the light emitted by each set of the light-emitting diodes can be adjusted for each color on a frame-to-frame basis.

5. An assembly as claimed in claim 1, wherein the light source comprises at least four sets of light-emitting diodes, wherein each set of light-emitting diodes has a different light-emission wavelength.

6. An assembly as claimed in claim 1, wherein each diode in each set of the light-emitting diodes has a luminous flux of at least five lumens.

7. An assembly as claimed in claim 6, wherein each set of the light-emitting diodes is mounted on a printed circuit board.

8. A display device for use with an illumination system, the illumination system comprising a light-emitting panel and at least one light source, the light source being associated with the light-emitting panel and comprising at least three sets of light-emitting diodes, each set of light-emitting diodes having a different light-emission wavelength, the display device comprising:

a pattern of pixels capable of receiving light from the light-emitting panel in the illumination system; and

a control circuit operable to drive the pixels, the control circuit also operable to drive luminous fluxes of the light-emitting diodes in dependence upon an image to be displayed by the display device.

9. An illumination system for use with a display device, the display device provided with a pattern of pixels driven by a

control circuit, the illumination system for illuminating the display device and comprising:

a light-emitting panel; and

at least one light source associated with the light-emitting panel;

wherein the light source comprises at least three sets of light-emitting diodes, each set of light-emitting diodes having a different light-emission wavelength, the light-emitting panel capable of providing light to the display device; and

wherein the control circuit is operable to drive luminous fluxes of the light-emitting diodes in dependence upon an image to be displayed by the display device.

10. An assembly as claimed in claim 1, wherein a first set of light-emitting diodes has a red light-emission wavelength, a second set of light-emitting diodes has a green light-emission wavelength, and a third set of light-emitting diodes has a blue light-emission wavelength.

11. An assembly as claimed in claim 2, wherein a first set of light-emitting diodes has a red light-emission wavelength, a second set of light-emitting diodes has a green light-emission wavelength, and a third set of light-emitting diodes has a blue light-emission wavelength.

12. An assembly as claimed in claim 2, wherein the intensity of light emitted by each set of the light-emitting diodes can be adjusted on a frame-to-frame basis.

13. An assembly as claimed in claim 2, wherein the intensity of light emitted by each set of the light-emitting diodes can be adjusted for each color on a frame-to-frame basis.

14. An assembly as claimed in claim 5, wherein a first set of light-emitting diodes has a red light-emission wavelength, a second set of light-emitting diodes has a green light-emission wavelength, a third set of light-emitting diodes has a blue light-emission wavelength, and a fourth set of light-emitting diodes has an amber

light-emission wavelength.

15. An assembly as claimed in claim 2, wherein each diode in each set of the light-emitting diodes has a luminous flux of at least five lumens (5 lm).

16. An assembly as claimed in claim 15, wherein each set of the light-emitting diodes is mounted on a printed circuit board.

17. A display device for use with an illumination system, the illumination system comprising a light-emitting panel and at least one light source, the light source being associated with the light-emitting panel and comprising at least three sets of light-emitting diodes, each set of light-emitting diodes having a different light-emission wavelength, the display device comprising:

a pattern of pixels capable of receiving light from the light-emitting panel of the illumination system; and

a control circuit operable to drive the pixels, the control circuit also operable to drive luminous fluxes of the light-

emitting diodes in dependence upon an image to be displayed by the display device;

wherein the control circuit is operable to vary an intensity of light emitted by each set of the light-emitting diodes in response to an illumination level of the image to be displayed by the display device.

18. A display device as claimed in claim 17, wherein the light source comprises at least four sets of light-emitting diodes, wherein each set of light-emitting diodes has a different light-emission wavelength.

19. An illumination system for use with a display device, the display device provided with a pattern of pixels driven by a control circuit, the illumination system for illuminating the display device and comprising:

a light-emitting panel; and

at least one light source associated with the light-emitting panel;

wherein the light source comprises at least three sets of light-emitting diodes, each set of light-emitting diodes having a different light-emission wavelength, the light-emitting panel capable of providing light to the display device; and

wherein the control circuit is operable to drive luminous fluxes of the light-emitting diodes in dependence upon an image to be displayed by the display device; and

wherein the control circuit is further operable to vary an intensity of light emitted by each set of the light-emitting diodes in response to an illumination level of the image to be displayed by the display device.

20. An illumination system as claimed in claim 19, wherein the light source comprises at least four sets of light-emitting diodes, wherein each set of light-emitting diodes has a different light-emission wavelengths.

Patent

Serial No. 09/837,937

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EVIDENCE APPENDIX

None

Patent

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RELATED PROCEEDINGS APPENDIX

None